

## Surveying - I

03-6-16  
Q.P. Code : 537502

(3 Hours)

[ Total Marks : 80

- N.B. : (1) Question No. 1 is compulsory.  
 (2) Attempt any three from the remaining five questions.  
 (3) Attempt sub-questions in order.  
 (4) Figures to the right indicate full marks.

1. Attempt any five.

- (a) Explain fly levelling with its suitability.  
 (b) Direct vernier, Retrograde vernier - Explain.  
 (c) How will you measure deflection angle of a survey line using theodolite  
 (d) Difference between Prismatic & surveyor's compass.  
 (e) Area of Zero circle.

2. (a) Explain how you would setup a plane table at a station. 4

(b) The following bearing were observed on a traverse. 10

Line	AB	BC	CD	DA
FB	80° 45'	130° 30'	240° 15'	290° 30'
BB	260° 00'	311° 35'	60° 15'	110° 10'

Make corrections for local attraction and declination of 1° 30' and calculate true fore bearing.

(c) At the end of survey of a field a 30m chain was found to be 10cm too long. 6  
 The area of the plan drawn with the measurements taken with its chain is found to be 125cm<sup>2</sup>. If the scale of the plan is 1cm = 10m, what is the true area of the field. Assume that the chain was exact 30m of the commencement of the work.

3. (a) The following are the lengths and bearing in a traverse ABCD 10

Line	AB	BC	CD
Length (m)	124	168	97
Bearing	32°	168°	44°

(b) How is the closing error of the traverse adjusted graphically. 6

(c) How will you use line ranger in the field. Draw a neat sketch. 4

[TURN OVER



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- 4. (a) It was required to ascertain the elevation of two points P & Q and line of levels was runs from P to Q. The levelling was then continued to a bench mark of 83.500 the reading obtained being as shown as below. Obtain RL of P & Q. 10

BS	IS	FS	RL	Remarks
1.622				P
1.874		0.354		
2.032		1.780		
	2.362			Q
0.984		1.122		
1.900		2.824		BM

- (b) Explain interpolation of contours. What are the methods available? Explain any one method in detail. 6
- (c) Discuss the importance of reconnaissance in surveying. 4
- 5. (a) Explain Radiation and Intersection method of plane table survey with neat sketch. 8
- (b) Describe temporary adjustment of theodolite. 6
- (c) Explain briefly the instruments used in setting out perpendicular offsets in chain surveying. 6

- 6. (a) The following notes refer to the reciprocal levels with one level. 8

Insturment at	Staff Reading m		Remark
	A	B	
A	1.150	2.540	Distance between A and B = 1250m and RL of A = 650.50m
B	0.965	2.410	

- Find (i) True RL of B 7
- (ii) Combined correction for curvature & refraction
- (b) Obstacles in chaining 7
- (c) Balancing fore sight and backsight 5